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JAPANESE MEDICAL EQUIPMENT

PLASMA, HUMAN BLOOD, DRIED

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REPORT NO. 162

15 January 1946

MEDICAL ANALYSIS SECTION
5250th Technical Intelligence Comapny
APO 500

15 January 1946.

Plasma, Human Blood, Dried

SOURCE: Tokyo, Japan.

IMPORTANCE: Not previously reported.

DESCRIPTION: The samples of blood plasma obtained by the Medical Section of the US Army Technical Intelligence Center, Tokyo were of two types. The first is the type which was used by the Japanese Army and the second is the type used by the Japanese Navy. Each sample is contained in a wooden box, 12 1/4"x5 1/4"x 3 1/4". The box containing the Army blood plasma bears the date 29 July 1944 and the manufacturer's number 105151. The "label" has "dried human blood-plasma" written on it in Japanese and Latin. The literal translation of the rest of the label is: "substitute of transfusion blood, dried human blood plasma with the distilled water used for solution 200 cc. Patentes Army Minister by Army Medical College. The blood used for making this plasma was devoted (donated) by the nation in Japan proper. In case of using this you must read the explanation. Avoid the severe cold."

The box containing the Navy blood plasma bears a similar label with the manufacturer's number 302, date 18 January 1945, and the statement that it was handled by the 1st Naval Bureau.

The Army plasma box, apparently complete, contains the following:

- a. Vacuum bottle of 200cc dried plasma similar in appearance to that used by the US Army Medical Department.
- b. Glass vial containing 200cc distilled water.
- c. Glass filter wrapped in gauze and cellophane.
- d. Sheet of directions for use.
- e. Information sheet for reactions.
- f. Name of donor.

The Navy plasma box is incomplete and contains the following

- a. Vacuum bottle containing dried plasma. This bottle of plasma apparently has deteriorated or else has been prepared by a different process as it has separated into two distinct elements.
- b. Glass filter.

COMMENT: This item is of intelligence interest for many reasons. It is apparent that the item is far inferior to the similar item used in the US Army Medical Department. The Japanese item is poorly packed and it does not contain tubing so that this must be made available at the time of transfusion. The item has not previously been picked up by Intelligence teams so it would seem that the use of plasma or else the supply of the same was extremely limited. An ampule larger than 200cc has not been found while the latest American plasma unit contains 500cc. It is stated in the literature accompanying the Japanese plasma unit that the plasma will last for 3 years without deteriorating. A statement is made in the

literature that the plasma will become "poisonous" if shaken while being dissolved. This statement is doubtful to say the least. Also it is stated that either saline or distilled water can be used. Our Medical Department uses only distilled water. It is of interest to note that the name of the donor is with each unit so that the recipient may write his thanks to his benefactor. Also, it is interesting to note that each unit contains a paper to be filled in and sent to the Army or Navy Bureau in case of untoward reactions.

A literal translation of the papers contained in the Japanese plasma unit is included in this report.

Photographs;

Fig 1: Army plasma unit.

Fig 2: Navy plasma unit(incomplete).

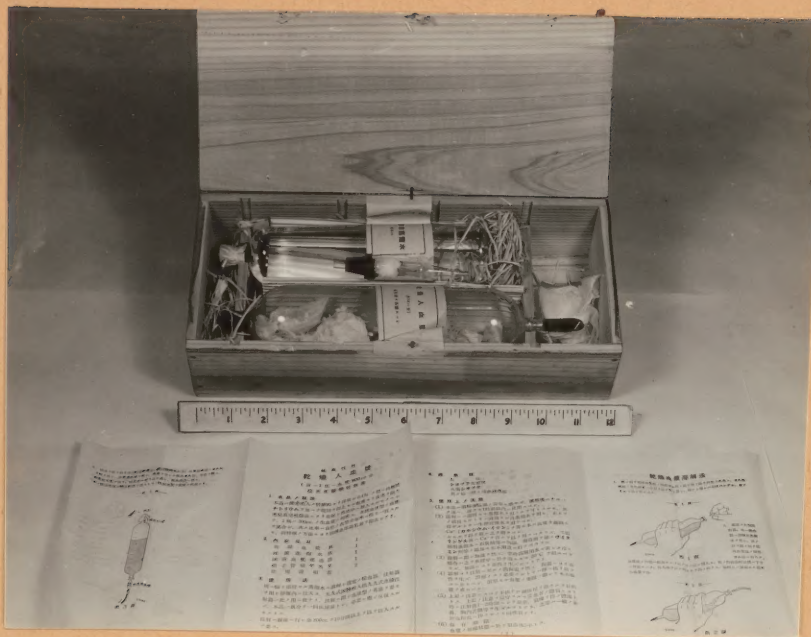


Fig 1 - Army plasma unit.



Fig 2 - Navy plasma unit

THE SUBSTITUTE OF THE BLOOD

The direction in using the dried human blood plasma.

By the First Naval Bureau of Medical Supplies.

1. The method of manufacturing this blood plasma. The Sodium Citrate is added at the rate of 0.4% to the blood of the healthy adult for the purpose of prevention of coagulation. After the blood plasma's being separated and collected it is dried up and put into an ampule.

The dried human blood plasma in an ampule is equivalent to 200cc of the living blood plasma.

The element which coheres the identical corpuscles was taken off by the special methods.

2. The list of the contents of this set.

1. Bottle containing the dried human blood plasma 1.
2. Filter for the sterilized blood plasma 1.
3. Bottle containing the sterilized and distilled water 1.
4. Direction note of use 1.
5. Inquiry paper 1.
6. Name card of the devoter of this blood. 1.

3. How to use.

1. The caution in using this.

a. When you want to use this, you dissolve this in 200 cc of the sterilized distilled water (or the sterilized physiological saline water) and inject it in the vein by a transfusion or a syringe.

2. You need not consider (on) the blood type in injecting it.

3. All the content of a bottle ought to be used at one time, and it is repeatedly injected in accordance with the condition.

4. The injection must be so slowly done that it takes 10 minutes or more to inject 200 cc.

5. As it may not be preserved in a state of perfection after dissolution, it must be used so soon as possible, at the latest within one hour.

6. The water which contains calcium, ion (Ringer's solution) must be strictly avoided because it will coagulate the blood plasma.

7. If it is warmed in being dissolved there is a fear of being poisonous. So when the temperature of the water which is used for dissolution is very low on account of the cold weather, you can warm it in the bath, but it must not be more than 30° C.

8. If it is shaken at any time for dissolution and injection, it will become poisonous. So you must be so careful as not to shake it.

9. It is regulated that the period for which this plasma is preserved is about three years after manufacture.

10. Though this was forwarded after several strict examinations, it may happen that the ampulla is penetrated by the air because of its being highly vacuous and consequently the blood plasma is degenerated. So you must be watchful to the outward aspects as dryness, color etc. and you must not use any one of which you found any variation.

11. Even if the above mentioned cautions is strictly kept the patient happens to be accompanied by chill and a shudder 1 or 2 hours after injection in case of some physical constitute.

Sometimes the symptoms of the arise of temperature and the agony of the breast may happen to appear.

Though these symptoms are of the same kind with the ones which accompanies the transfusion of the fresh blood, we want to make assurance doubly sure for the sake of the prevention of the reaction. If it is possible please write down in the inquiry paper and forward it to the First Naval Bureau of Medical Supplies.

4. The diseases for which this is used.

1. A shock by the burn, loss of blood, shock and physical collapse, the symptoms of the low albumen in the blood. Cachexia and the other diseases which require the blood-transfusion.

How to dissolve the dried blood plasma and how to inject it in the vein.

The First Illustration.

As the illustration shows, take off the glass plug which was fixed on a rubber plug on the top. Cut off the capsule at the top of a rubber tube by using a knife.

The Second Illustration.

Fill the distilled water for dissolution in a suitable big syringe, thrust its needle in a bottle which contains the dried blood plasma as the illustration shows. Spray the water in the bottle as its internal is vacuous, in this case, make the blood plasma stayed at the lower part, and pour the injecting water so equally as to wet all the surface until it's height will come to the quantity registered on the bottle.

The Third Illustration.

Put it still for about 5 or 10 minutes as it is, after pour, dissolve duly it, and it will become the straw-like yellow colored blood plasma water which is rather turbid.

Next take off a rubber plug at the top of the blood plasma bottle, fix the blood plasma filter, and fix a rubber tube for blood-transfusion and a needle through the medium of the filter.

Cut off the tail of the blood plasma bottle, cover with a sterilized gauze and begin to tranfuse the blood as the illustration shows.

In this case, if you mark the graduated lines as you want you will see it convenient because you can know the velocity of the injection.

Otherwise, you can operate the blood transfusion by connecting a "Type Nishimaki Salt Syringe" or a transfuser with the blood plasma filter

INQUIRY PAPER CONCERNING THE REACTION CAUSED BY THE INJECTION OF THE DRIED BLOOD-PLASMA

Manufacture of plasma _____ Date _____ (hard

Degree of vacuum _____ Degree of dissolution (easy
Kind of the plasma used _____ The plasma used _____
The type of the blood _____
Injection of plasma _____ Date _____

The quantity used _____ The numbers of injections _____
Intervals of injections _____
Medical history of the patient.
a. Nettle rash (purpura) and the substance which caused it.
b. Blood or serum injection.
(Quantity _____ number _____ age _____)

Reactions
a. The time from the injection to its appearance of reaction.
b. The velocity of the injection (time _____)
(heavy
Degree (middle
(light

Immediate reactions
Chill, flushing of the face, nausea, uneasiness.
Vomit, Agony in the chest, shudder, pain in the chest.
Paleness of the face, stomach-ache.
Numbers of breathing (directly after injection _____ after _____
one hour _____)
Pressure of blood (directly after injection _____ after one hour _____)
The others (reactions)

Delayed reactions.
Feverishness (highest) Head - ache
Pain of the muscle Pain of the joint
Nettle rash (whole body Local part the time it
appeared)
(albumen urobilin saccharose)
Urine (precipitate urobilinen (glucose))

DONER SHEET

The blood which was transfused to you when you had been heavy wounded was voluntarily devoted by a enthusiastic patriot behind the gun, namely:

Kiyo Nakamura

No. 1 Ichome, Shinogawamachi, Ushigomeku, Tokyo.

The back of this tag.

Our desire to the military surgeon officer who used this dried blood plasma.

This dried blood plasma was made from the blood which had been voluntarily devoted by an enthusiastic patriot behind the gun. Please tie this label to one of the patients belongings or something after the blood transfusion so that the patient may forward a thankful letter to the devoter after his regaining health

The First Naval Bureau of Medical Supplies.